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Chapter 11. Puerto Rico and the Outlying Areas

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Chapter 11. Puerto Rico and the Outlying Areas

INTRODUCTION

Legal Authority

Title 13 of the U.S. Code states that the censuses of population shall include "each State, the District of Columbia, the Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and the Commonwealth of Puerto Rico, and as may be determined by the Secretary [of Commerce], such other possessions and areas over which the United States exercises jurisdiction, control, or sovereignty ... [inclusion of which] shall be subject to the concurrence of the Secretary of State." Accordingly, discussions were held in August and September 1978 with representatives of the Department of State, in which the two Departments agreed to include the following areas in addition to those listed above: American Samoa, the Trust Territory of the Pacific Islands (excluding the Northern Mariana Islands), and a number of islands, atolls, and reefs administered by the U.S. Department of Defense. These latter included Johnston Atoll, Midway, Wake, Canton, and Enderbury Islands, together with several smaller, uninhabited islands associated with them.¹

Historical Background

Puerto Rico—The island of Puerto Rico was ceded to the United States by Spain in 1898 and became a commonwealth in 1952. Under Spanish rule, censuses had been taken at irregular intervals between 1765 and 1887. A special census of Puerto Rico was taken by the U.S. War Department in 1899, and Puerto Rico has been included in every U.S. decennial census since 1910 and in each housing census since 1940. The 1980 Census of Population and Housing of the Commonwealth of Puerto Rico was conducted as a joint project of the U.S. Bureau of the Census and the Puerto Rico Planning Board.

American Samoa—Following the acquisition of American Samoa by the United States in 1900, censuses were taken at various times under the direction of the Governors. The population of

American Samoa was enumerated in the 1920 and all subsequent U.S. decennial censuses. American Samoa has participated in the housing census since 1960.

Guam—The first enumeration of the population of Guam, after its occupation by the U.S. Government in 1899, was made in 1901 under the direction of the second naval governor. Population statistics were included in the governor's annual reports in subsequent years. Guam was included in the U.S. decennial census of population for the first time in 1920 and has participated in the decennial housing census since 1960.

Trust Territory of the Pacific Islands—This territory has been administered by the United States since 1947 as a United Nations strategic trust territory. The 1970 census was the first decennial census of population and housing conducted under Census Bureau auspices. Results from a census conducted in 1958 by the High Commissioner of the Trust Territory were included in the 1960 census reports. The 1950 census was taken by the U.S. Navy, and the area was enumerated by the Japanese in quinquennial censuses from 1920 to 1940. In anticipation of a change in the legal status of the Northern Mariana Islands and in accordance with the wishes of the administration of these islands, the Northern Marianas were enumerated, and data were tabulated, separately from the rest of the Trust Territory for the 1980 census.

Virgin Islands—The Danish Government took periodic censuses of these islands between 1835 and 1911. A special Federal census was taken as of November 1, 1917, shortly after the islands were formally transferred to the United States. The islands were included in the 1930 and all subsequent decennial censuses of population and in all housing censuses since 1940.

Other Areas—In 1980, the Department of Defense provided the Bureau with population counts for Johnston Atoll and for Midway and Wake Islands. This marked a shift from the Bureau's previous procedure of enumerating the populations of these islands separately. Midway Island was enumerated for the first time in 1930, when its population was included with that of Hawaii. In 1940, the Hawaiian census included Johnston Atoll and Midway, Canton, Enderbury, Baker, Howland, and Jarvis Islands; the latter three islands were uninhabited in 1950, 1960, 1970, and 1980. Canton and Enderbury Islands were uninhabited in 1970 and 1980, but the former was populated in

¹ Johnston Atoll consists of Johnston Island and Sand Island. For a complete listing of the areas included in the 1980 decennial census, see *1980 Census of Population, Number of Inhabitants (PC80-1-A)*, United States Summary, p. 1-33.

1960 and both were inhabited in 1950. Neither the Swan Islands nor the Canal Zone were enumerated in 1980. Sovereignty over the Swan Islands passed to Honduras in September 1972 under the terms of a treaty signed in November 1971. On October 1, 1979, the United States transferred sovereignty over the Canal Zone to Panama in accordance with the terms of a treaty signed in September 1977 and ratified the following April. Fletcher's Island, a drifting slab of shelf ice in the Beaufort Sea off the northern coast of Alaska, once used by the U.S. Navy, was enumerated in 1970, but not in 1980.

PUERTO RICO

Special Agreement with the Commonwealth Government

In October 1958, the Bureau of the Census and the Commonwealth Government concluded a special agreement concerning the conduct of censuses in Puerto Rico. The basic purposes of the agreement were to assure the efficient operation of the census program, to provide the Commonwealth with a large share of the responsibility for planning and conducting the various censuses, and to assure full consideration for the unique statistical needs of the Commonwealth Government. Each census thereafter has been conducted according to subsequent amendments to the basic 1958 agreement. Since then, Governors of Puerto Rico have regularly appointed the Puerto Rico Planning Board to serve as the coordinating agency for the Commonwealth's census operations.

In February 1980, the agreement for the 1980 Census of Population and Housing was signed by the Director of the Bureau of the Census; the following month, the chair of the Puerto Rico Planning Board added his signature. Some of the major provisions of this agreement were as follows:

1. The cost of the basic 1980 Census of Population and Housing in Puerto Rico would be borne by the Census Bureau.
2. A substantial number of population and housing items would be covered on a 1-in-6 sample basis.
3. The Bureau would establish a temporary area office in Puerto Rico from which the census would be conducted. Managers of this office and of the eight district offices would be temporary Census Bureau employees.
4. The Bureau would be responsible for the hiring and training of personnel; the establishment of pay rates; the preparation and distribution of maps, supplies, and equipment; questionnaire content and design; and the tabulation and publication programs.

5. The Bureau would consult with the Puerto Rico Planning Board, other Commonwealth agencies, and a number of advisory groups on such issues as questionnaire content, the categories to be used in tabulating the data, and the publications program.
6. The Commonwealth Government would assist the Bureau in publicizing the census, collecting maps and boundary information, designating appropriate statistical areas, identifying candidates for field positions, and translating.

Organization of the Work

The various phases of the population and housing census program were developed by Bureau staff members in consultation with representatives of the Puerto Rico Planning Board and other Commonwealth agencies. The Decennial Census Division was responsible for coordinating support and administrative activities at Census Bureau headquarters in Suitland, MD. To direct the onsite census program, the Census Bureau named an area office manager for Puerto Rico. The Administrative Services, Population, Housing, Statistical Methods, and Publication Services Divisions provided advice and technical assistance as needed on the development of questionnaire format and content, sampling procedures, tabulation plans, and publications.

The Field Division was responsible for the selection and training of the field staff and for collecting the data. The Geography Division was responsible for obtaining boundary and other geographic information and for preparing all census maps. For the largest urban areas, the Geography Division prepared base maps in its Metropolitan Map Series, which were sent to the Puerto Rico Planning Board for update and correction. The revised maps were returned to the Bureau, which added block numbers and enumeration district (ED) boundaries and numbers; ED's were based on locally defined ED plans. Using U.S. Geological Survey topographic quadrangle maps and place maps provided by the Puerto Rico Planning Board as a base, the Census Bureau prepared ED maps for the remaining areas of Puerto Rico, again based on local ED plans. The Geography Division designed, and the Decennial Preparation Division's Geography Branch prepared, the maps used in the Bureau's published reports.

The completed questionnaires were coded, microfilmed, and read by FOSDIC (film optical sensing device for input to computer) at the Bureau's facility in Laguna Niguel, CA, and computer processing was done at Bureau headquarters. (See ch. 6.)

Census Calendar

In July 1978, Bureau representatives met with officials of the Commonwealth Government agencies to discuss plans for the census. Subsequently, a general plan was outlined, and the principal events in the census operation were scheduled and carried out in the following order:

1975

- Review and update of early plans for census tracts

1978

- Development of questionnaire content for the 1980 census with Puerto Rican officials
- Review and update of base maps and local delineation of ED's and places

1979

- Test census in Puerto Rico
- Drafting of final census questionnaires, and transmittal to the Government Printing Office for production
- Preparation of instructions and training materials for the field and office staff
- Census Bureau review and recording of the boundaries of barrios (minor civil divisions—MCD's), subbarrios, places, and ED's; and numbering of blocks
- Preparation of enumeration maps

1980

- Agreement signed between the Bureau of the Census and the Commonwealth of Puerto Rico regarding the conduct of the census
- Shipment of questionnaires, maps, instructions, and training materials to the census office in San Juan, PR
- Organization and training of the field staff
- Enumeration
- Preliminary editing of census questionnaires
- Release of preliminary population counts
- Local officials' review of preliminary counts
- Shipment of all census materials to Laguna Niguel, CA

1981

- Completion of specifications for coding, editing, and tabulation
- Tabulation of 100-percent data
- Coding of sample data
- Tabulation of sample data begun
- Preparation of tables for publication
- Publication and distribution of first reports, containing 100-percent data

1982-1986

- Completion of tabulation, publication, and summary tape file program

Changes from Previous Census Procedures

The major innovations for the 1980 census in Puerto Rico were geared toward improving data quality and census coverage. To improve data quality, the Census Bureau introduced a formal quality-control edit procedure. A sample of completed questionnaires was selected from each ED. Several items on each questionnaire were edited for completeness and accuracy. Those that failed the edit were sent to the field, where questionable entries and missing information were resolved during the followup enumeration. Two coverage-improvement procedures were also implemented in Puerto Rico in 1980: The vacancy check (or unit-status review) involved sending questionnaires for all units initially classified as vacant by the enumerators back to the field for verification during the followup enumeration. In the post-enumeration post office check (PEPOC), enumerators filled out a card for each address at which they collected a questionnaire. Postal carriers then matched the cards they received from the Census Bureau to the addresses on their postal routes. The Postal Service identified addresses missing from the enumerators' cards and nonexistent addresses for which questionnaires had been produced. The PEPOC enabled the Census Bureau to remove erroneous addresses from its records and, upon verification by the census office, to add nonmatched addresses to the address registers. The latter were enumerated during the followup procedure.

The first evaluation studies of the Puerto Rico census were conducted in 1980. The Puerto Rico Labor Force Match Study evaluated 1980 census coverage differences in Puerto Rico by age, sex, and selected geographic areas. The study matched the April 1980 Puerto Rico Labor Force Survey to the 1980 census records. The study found that the match rates for males and females were not significantly different, but that the rate for persons under 30 years of age was significantly lower than that for people 30 years of age and older. Another evaluation study examined place-of-work coding for the 1980 census. The file-closeout evaluation of the San Juan GBF/DIME file² checked the automated geocoding potential of the file by estimating the accuracy of the block, census tract, place, and ZIP Codes in the file. Geocoding error rates for San Juan were estimated to be at least four times greater than those for the United States, primarily because the unique address system used in Puerto Rico posed significant problems for automated geocoding. As

²San Juan was the only area in Puerto Rico for which the Census Bureau attempted to prepare such a file. GBF/DIME stands for geographic base file/dual independent map encoding; see ch. 3.

a result, the Census Bureau decided to code place-of-work information clerically at the place, MCD (barrio, aldea, ciudad), and municipio levels, for all the Puerto Rico SMSA's.

Two other changes should also be noted. In 1970, the population and housing census had been taken simultaneously with the census of agriculture. In 1980, the census of population and housing was not combined with other census activities (agricultural censuses were taken in 1978 and 1983). Second, the 1980 Census of Population and Housing included provisions for local review by local elected officials. Local review committees were given an opportunity to contest population and housing counts at the ED level. Under certain circumstances, differences between the committees and the Bureau were resolved by selective reenumeration.

The 1979 Test Census

A test census was conducted in July and August 1979 to evaluate the procedures planned for the actual census to be taken in 1980. The specific objectives of the test census were to examine certain coverage-improvement techniques and a limited number of content items.

The area covered included portions of the built-up and rural sections of the Mayagüez and San Juan municipios. One census office was opened in each municipio, and 118 ED's were delineated. Urban ED's contained approximately 63 percent of the 17,282 housing units counted, and rural ED's contained about 37 percent.

The results indicated that implementation of the quality-control procedures tested would improve data quality. Tests of coverage-improvement techniques such as PEPOC and the vacancy check showed that such techniques could be used successfully in Puerto Rico. The test also served as an aid in establishing the piece-rate payment system for enumerators used during the actual census.

A number of modifications were made to the 1980 questionnaire as a result of this test census, most of which clarified or simplified the wording of questions or the format of the questionnaire. In some cases, response categories were subdivided; for example, the answers to the question on the person's ability to speak English were altered from a yes/no dichotomy to a tripartite distinction with two affirmative responses ("Yes, easily" and "Yes, with difficulty") and one negative response. A test census question asking the number of times the person had been married was not included in the 1980 census.

Questionnaires

Two FOSDIC-readable household questionnaires were developed, based on the 1980 U.S. questionnaires with modifications for Puerto Rico. These questionnaires were printed in

both English and Spanish. One, containing the population and housing items asked for all persons and housing units, was used for approximately 83 percent of the households. This questionnaire was issued in two forms: One, form D-13-PR, included instructions and examples so that householders who received the questionnaire in advance of the census could complete it before the enumerator called. This form was distributed by the post office in urban areas. The other, form D-1-PR, which did not have an instruction sheet, was carried by enumerators who collected all of the data by direct interview in the remaining areas. One sample questionnaire, form D-2-PR, contained the complete-count items as well as a number of sample items; this form was used by the enumerator at every sixth housing unit. (A 1-in-6 sample was also used for most of the United States. However, governmental jurisdictions with fewer than 2,500 inhabitants were sampled on a 1-in-2 basis.)

In areas without carrier delivery service, questionnaires were available where people picked up their mail. Household-ers were asked to fill out the questionnaire and give it to the enumerator when he or she visited the household.

The Individual Census Report (ICR), form D-20-PR, was printed in English and Spanish. It contained the same complete-count and sample population items as the household questionnaire. As on the mainland, the ICR was used to enumerate guests and visitors in hotels, motels, and private homes with no one at their usual residences to give information to a census taker. In Puerto Rico, the ICR was also used for residents of institutions and other group quarters where housing information was not collected. Military Census Reports (MCR's), form D-21-PR, were used to enumerate military personnel living on military bases or vessels. The data for these residents later were transcribed to FOSDIC-readable household questionnaires; the data from every sixth ICR were transcribed to a sample form D-2-PR, while a short form D-1-PR was used for the balance.

The D-1-PR, D-2-PR, D-13-PR, and D-20-PR forms for Puerto Rico resembled those used on the mainland in size, format, and number of inquiries. About three-fourths of the population and housing questions were the same for Puerto Rico and the United States. Eight of the U.S. population questions and four of the housing questions were modified to obtain information useful to the Commonwealth Government. Five of the population items and five of the housing inquiries were unique to the Puerto Rico questionnaires, and roughly the same number of stateside items were excluded. The principal variations were as follows:

Population—Among the complete-count questions, the marital-status inquiry in Puerto Rico included the category "consensually married." The category was added in 1960 because of the frequency with which this status had been reported in previous censuses. The question on race or color, asked in the United States, was omitted (as it had been in 1960 and 1970) in accordance with recommendations of Commonwealth officials. The Spanish-origin question, which appeared on the U.S.

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complete-count questionnaire for the first time in 1980, was not asked in Puerto Rico in 1980 because most of the island's residents are Hispanic. Several sample population items were included on the questionnaire that did not appear in the stateside census. These were as follows, by item number (the items are shown in Spanish and English respectively as they appeared on the appropriate version of the questionnaire):

10a. ¿Dónde nació el padre de...?

☐ Puerto Rico ☒ Estados Unidos

☐ Otro país —

Especifique →

(Estado de E.U. o país extranjero)

b. ¿Dónde nació la madre de...?

☐ Puerto Rico ☒ Estados Unidos

☐ Otro país —

Especifique →

(Estado de E.U. o país extranjero)

10a. Where was ... 's father born?

☐ Puerto Rico ☒ ☐ United States _____ ↘

☐ Other country —
Specify → _____

(U.S. State or foreign country)

b. Where was ... 's mother born?

☐ Puerto Rico ☐ United States _____ ↘

☐ Other country —
Specify → _____

(U.S. State or foreign country)

13a. Durante los últimos 10 años, ¿vivió ... alguna vez en los E.U. por 6 meses consecutivos o más?

☐ Sí ☐ No — *Pase a la pregunta 14*

b. ¿En qué año vino o regresó a P.R. ... la última vez?

☐ 1980 ☐ 1977 ☐ 1974
☐ 1979 ☐ 1976 ☐ 1973
☐ 1978 ☐ 1975 ☐ 1970 a 1972

c. ¿Por cuánto tiempo vivió ... en los E.U. la última vez?

☐ 0 meses a 1 año ☐ 5 años
☐ 1 a 2 años ☐ 6 a 9 años
☐ 3 a 4 años ☒ 10 años o más

d. Los últimos 6 meses que ... vivió en los E.U., ¿estaba —

	<u>Sí</u>	<u>No</u>
(1) Trabajando en un empleo o negocio? (<i>jornada completa o parcial</i>)	<input type="radio"/>	<input type="radio"/>
(2) En las Fuerzas Armadas?	<input type="radio"/>	<input type="radio"/>
(3) Asistiendo a una escuela o universidad?	<input type="radio"/>	<input type="radio"/>

13a. During the last 10 years did ... live in the United States at any time for 6 or more consecutive months?

☐ Yes ☐ No — *Skip to 14*

b. When did ... come or return to Puerto Rico the last time?

☐ 1980 ☐ 1977 ☐ 1974
☐ 1979 ☐ 1976 ☐ 1973
☐ 1978 ☐ 1975 ☐ 1970 to 1972

c. How long did ... live in the U.S., the last time?

☐ 6 months up to 1 year ☐ 5 years
☐ 1 to 2 years ☐ 6 to 9 years
☐ 3 to 4 years ☐ 10 or more years

d. For the last 6 months that ... lived in U.S., was ... —

	<u>Yes</u>	<u>No</u>
(1) Working at a job or business? (full or part-time)	<input type="radio"/>	<input type="radio"/>
(2) In the Armed Forces?	<input type="radio"/>	<input type="radio"/>
(3) Attending school or college?	<input type="radio"/>	<input type="radio"/>

14. ¿Sabe ... leer y escribir (en cualquier idioma)?

☐ Sí ☐ No

15a. ¿Sabe ... hablar español?

☐ Sí ☐ No

14.	Does ... know how to read and write (<i>In any language</i>)?
<input type="radio"/>	Yes
<input type="radio"/>	No
15a.	Can ... speak Spanish?
<input type="radio"/>	Yes
<input type="radio"/>	No

21a. ¿Ha completado... los requisitos de un programa de adiestramiento vocacional en una escuela industrial, escuela comercial, hospital u otro tipo de escuela de adiestramiento ocupacional?
No incluye cursos académicos de nivel universitario.

☐ Sí ☐ No—Pase a la pregunta 22

b. ¿En qué tipo de escuela recibió el adiestramiento?

☐ Escuela comercial, industrial o "junior college"
☐ Programa vocacional de escuela superior
☐ Programa de adiestramiento en el lugar de trabajo
☐ Otra escuela — *Especifique* →

21a. Has ... completed the requirements for a vocational training program at a trade school, business school, hospital or some other kind of school for occupational training?
Do not include academic college courses.

☐ Yes ☐ No — Skip to 22

b. At which kind of school was the training received?

☐ Business school, trade school, or junior college
☐ High school vocational program
☐ Training program at place of work
☐ Other school— Specify _____

The question on ability to read and write (literacy) has been asked in Puerto Rico since 1910. The topic was eliminated from the stateside census in 1940. The question on vocational

training had been asked in both Puerto Rico and the United States in 1970; it was dropped from the U.S. census in 1980 because of data-quality concerns. The question on ability to speak Spanish was added to the language item in 1980 at the request of the Puerto Rico Department of Education.

In Puerto Rico, the birthplace item (see below, item 6) appeared on the complete-count portion of the census, whereas it was a sample question in the mainland version. Also, the U.S. version asked the respondent to write in the name of the State, territory, commonwealth, or foreign country in which he/she was born. In Puerto Rico, the Census Bureau provided several birthplace options (e.g., Puerto Rico, Cuba, Spain, and the Dominican Republic) and a residual category ("other country"). Similarly, the responses in the Puerto Rican questionnaire to the inquiry on means of transportation to work differed slightly; categories such as "public car" and "launch" were included to reflect local means of transportation. Stateside categories such as "railroad" and "subway or elevated" were not used in Puerto Rico and did not appear on the form. For comparison, these two questions are reproduced below.

<p>6. ¿Dónde nació ... ?</p> <p><i>Si nació en un hospital indique el lugar de residencia de la madre, no el lugar de ubicación del hospital.</i></p> <p><i>Llene un círculo.</i></p>	<p>Nació en:</p> <p><input type="radio"/> Puerto Rico → Municipio</p> <p><input type="radio"/> Estados Unidos → Estado</p> <p><input type="radio"/> Cuba</p> <p><input type="radio"/> España</p> <p><input type="radio"/> República Dominicana</p> <p><input type="radio"/> Otro país →</p>
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<p>6. Where was ... born?</p> <p><i>If born in a hospital, give residence of the mother, not location of the hospital.</i></p> <p><i>Fill one circle.</i></p>	<p>Born in:</p> <p><input type="radio"/> Puerto Rico → Municipio</p> <p><input type="radio"/> United States → U.S. State</p> <p><input type="radio"/> Cuba</p> <p><input type="radio"/> Spain</p> <p><input type="radio"/> Dominican Republic</p> <p><input type="radio"/> Other country →</p>
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(U.S.) =

<p>11. In what State or foreign country was this person born?</p> <p><i>Print the State where this person's mother was living when this person was born. Do not give the location of the hospital unless the mother's home and the hospital were in the same State.</i></p> <p>_____ Name of State or foreign country; or Puerto Rico, Guam, etc.</p>
--

<p>b. Durante la semana pasada, ¿cómo se transportó usualmente ... a su trabajo?</p> <p><i>Si ... usó más de un medio de transportación, indique el que usualmente utilizó para viajar la mayor parte de la distancia.</i></p> <p><input type="radio"/> Auto privado</p> <p><input type="radio"/> Camión descubierto (truck)</p> <p><input type="radio"/> Camión cubierto (van)</p> <p><input type="radio"/> Guagua</p> <p><input type="radio"/> Carro público</p> <p><input type="radio"/> Lancha</p> <p><input type="radio"/> Taxi</p> <p><input type="radio"/> A pie solamente</p> <p><input type="radio"/> Trabajó en casa</p> <p><input type="radio"/> Otro medio — Especifique</p> <p><i>Si indicó automóvil privado, camión descubierto o cubierto en la 24b, continúe con la 24c. De lo contrario, pase a la 28.</i></p>

<p>b. How did ... usually get to work last week?</p> <p><i>If ... used more than one method, give the one usually used for most of the distance.</i></p> <p><input type="radio"/> Private car</p> <p><input type="radio"/> Truck</p> <p><input type="radio"/> Van</p> <p><input type="radio"/> Bus</p> <p><input type="radio"/> Public car</p> <p><input type="radio"/> Launch</p> <p><input type="radio"/> Taxicab</p> <p><input type="radio"/> Walked only</p> <p><input type="radio"/> Worked at home</p> <p><input type="radio"/> Other — Specify</p> <p><i>If private car, truck, or van in 24b, go to 24c. Otherwise, skip to 28.</i></p>
--

(U.S.) =

<p>b. How did this person usually get to work last week?</p> <p><i>If this person used more than one method, give the one usually used for most of the distance.</i></p> <p><input type="radio"/> Car</p> <p><input type="radio"/> Truck</p> <p><input type="radio"/> Van</p> <p><input type="radio"/> Bus or streetcar</p> <p><input type="radio"/> Railroad</p> <p><input type="radio"/> Subway or elevated</p> <p><input type="radio"/> Taxicab</p> <p><input type="radio"/> Motorcycle</p> <p><input type="radio"/> Bicycle</p> <p><input type="radio"/> Walked only</p> <p><input type="radio"/> Worked at home</p> <p><input type="radio"/> Other — Specify</p> <p><i>If car, truck, or van in 24b, go to 24c. Otherwise, skip to 28.</i></p>
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The sample questions on ancestry and marital history, which were asked in the United States, were not included in the Puerto Rico questionnaires.

Housing—Several of the complete-count housing items used on the mainland were modified for Puerto Rico because of the differences in housing characteristics. The question on the number of living quarters at each address was not included. The following items are shown in Spanish and English in the order in which they appeared on the two versions of the Puerto Rico questionnaire. The question as it was used in the United States appears immediately below.

In the United States, the question, "Do you have complete plumbing facilities in your living quarters...?" specified the presence of hot and cold piped water, a flush toilet, and a bathtub or shower. For Puerto Rico, the reference point of the question (H5) was the entire building rather than the particular living quarters of the respondent. The question was also subdivided into three parts, with a separate question for each major component of a "complete" plumbing system (hot and cold piped water, flush toilet, bathtub or shower). In all versions, the questions were to be answered by simply marking the appropriate FOSDIC circle.

<p>H5a. ¿Hay agua caliente y fría por tuberías en este edificio?</p> <p><input type="radio"/> Sí, hay agua caliente y fría por tuberías</p> <p><input type="radio"/> No, sólo hay agua fría por tuberías</p> <p><input type="radio"/> No hay agua por tuberías</p>
<p>b. ¿Hay una bañera o ducha en este edificio?</p> <p><input type="radio"/> Sí, para uso exclusivo de este hogar</p> <p><input type="radio"/> Sí, pero usada también por otro hogar</p> <p><input type="radio"/> No hay bañera ni ducha</p>
<p>c. ¿Hay un inodoro en este edificio?</p> <p><input type="radio"/> Sí, para uso exclusivo de este hogar</p> <p><input type="radio"/> Sí, pero usado también por otro hogar</p> <p><input type="radio"/> No → Si "No," ¿qué tipo de servicio sanitario hay?</p> <p><input type="radio"/> Letrina</p> <p><input type="radio"/> Otro o ninguno</p>

H5a. Is there hot and cold piped water in this building?

☐ Yes, hot and cold piped water in this building

☐ No, only cold piped water in this building

☐ No piped water in this building

b. Is there a bathtub or shower in this building?

☐ Yes, for this household only

☐ Yes, but also used by another household

☐ No bathtub or shower

c. Is there a flush toilet in this building?

☐ Yes, for this household only

☐ Yes, but also used by another household

☐ No → If "No," what type of toilet? ☐ Privy ☐ Other or none

(U.S.) = **H6. Do you have complete plumbing facilities in your living quarters, that is, hot and cold piped water, a flush toilet, and a bathtub or shower?**

☐ Yes, for this household only

☐ Yes, but also used by another household

☐ No, have some but not all plumbing facilities

☐ No plumbing facilities in living quarters

In the United States, residents of one-family houses were asked if their houses were situated on properties totaling 10 or more acres and if residential properties were also used for commercial or medical purposes. In Puerto Rico, lot size was measured in *cuerdas* (1 cuerda equals approximately 0.97 acres) rather than acres; 3 *cuerdas* was the dividing line, and the questions about other uses of residential property were asked separately rather than collectively.

H10. Si ésta es una casa de una familia —

a. ¿Está la casa en una propiedad de 3 cuerdas o más?

☐ Sí ☒ No

b. ¿Se usa alguna parte de la propiedad como:

	Sí	No
(1) Establecimiento comercial?	<input type="radio"/>	<input type="radio"/>
(2) Oficina médica?	<input type="radio"/>	<input type="radio"/>
(3) Otro tipo de oficina?	<input type="radio"/>	<input type="radio"/>

H10. If this is a one-family house —

a. Is the house on a property of 3 or more cuerdas?

☐ Yes ☒ No

b. Is any part of the property used as:

	Yes	No
(1) A commercial establishment?	<input type="radio"/>	<input type="radio"/>
(2) A medical office?	<input type="radio"/>	<input type="radio"/>
(3) Other type of office?	<input type="radio"/>	<input type="radio"/>

(U.S.) = **H10. If this is a one-family house —**

a. Is the house on a property of 10 or more acres?

☐ Yes ☒ No

b. Is any part of the property used as a commercial establishment or medical office?

☐ Yes ☐ No

The question on the value of residential property (H11) was the same for Puerto Rico as on the mainland except for the following: The value categories for Puerto Rico ranged from "less than \$2,000" to "\$100,000 or more," whereas in the United States the categories went from "less than \$10,000" to "\$200,000 or more." In the States, the value question was asked and tabulated for owner-occupied and vacant-for-sale one-family homes on less than 10 acres with no business establishment on the property; in Puerto Rico, the question was asked for all owner-occupied and vacant-for-sale one-family homes, but tabulation was limited to those that were (a) on less than 3 *cuerdas* of land, and (b) did not have a business on the property.

H11. Si ésta es una casa de una familia o una unidad en un condominio la cual usted posee o está comprando —

¿Cuál es el valor de esta propiedad, es decir, por cuánto cree usted que esta propiedad (casa y terreno o unidad en un condominio) se vendería?

<input type="radio"/> Menos de \$2,000	<input type="radio"/> \$25,000 a \$27,499
<input type="radio"/> \$2,000 a \$2,999	<input type="radio"/> \$27,500 a \$29,999
<input type="radio"/> \$3,000 a \$3,999	<input type="radio"/> \$30,000 a \$32,499
<input type="radio"/> \$4,000 a \$4,999	<input type="radio"/> \$32,500 a \$34,999
<input type="radio"/> \$5,000 a \$7,499	<input type="radio"/> \$35,000 a \$37,499
<input type="radio"/> \$7,500 a \$9,999	<input type="radio"/> \$37,500 a \$39,999
<input type="radio"/> \$10,000 a \$12,499	<input type="radio"/> \$40,000 a \$44,999
<input type="radio"/> \$12,500 a \$14,999	<input type="radio"/> \$45,000 a \$49,999
<input type="radio"/> \$15,000 a \$17,499	<input type="radio"/> \$50,000 a \$59,999
<input type="radio"/> \$17,500 a \$19,999	<input type="radio"/> \$60,000 a \$74,999
<input type="radio"/> \$20,000 a \$22,499	<input type="radio"/> \$75,000 a \$99,999
<input type="radio"/> \$22,500 a \$24,999	<input type="radio"/> \$100,000 o más

H11. If this is a one-family house or a condominium unit which you own or are buying —

What is the value of this property, that is, how much do you think this property (house and lot or condominium unit) would sell for?

<input type="radio"/> Less than \$2,000	<input type="radio"/> \$25,000 to \$27,499
<input type="radio"/> \$2,000 to \$2,999	<input type="radio"/> \$27,500 to \$29,999
<input type="radio"/> \$3,000 to \$3,999	<input type="radio"/> \$30,000 to \$32,499
<input type="radio"/> \$4,000 to \$4,999	<input type="radio"/> \$32,500 to \$34,999
<input type="radio"/> \$5,000 to \$7,499	<input type="radio"/> \$35,000 to \$37,499
<input type="radio"/> \$7,500 to \$9,999	<input type="radio"/> \$37,500 to \$39,999
<input type="radio"/> \$10,000 to \$12,499	<input type="radio"/> \$40,000 to \$44,999
<input type="radio"/> \$12,500 to \$14,999	<input type="radio"/> \$45,000 to \$49,999
<input type="radio"/> \$15,000 to \$17,499	<input type="radio"/> \$50,000 to \$59,999
<input type="radio"/> \$17,500 to \$19,999	<input type="radio"/> \$60,000 to \$74,999
<input type="radio"/> \$20,000 to \$22,499	<input type="radio"/> \$75,000 to \$99,999
<input type="radio"/> \$22,500 to \$24,999	<input type="radio"/> \$100,000 or more

(U.S.) =

H11. If you live in a one-family house or a condominium unit which you own or are buying —

What is the value of this property, that is, how much do you think this property (house and lot or condominium unit) would sell for if it were for sale?

Do not answer this question if this is —

- ☒ A mobile home or trailer
- ☒ A house on 10 or more acres
- ☒ A house with a commercial establishment or medical office on the property

<input type="radio"/> Less than \$10,000	<input type="radio"/> \$50,000 to \$54,999
<input type="radio"/> \$10,000 to \$14,999	<input type="radio"/> \$55,000 to \$59,999
<input type="radio"/> \$15,000 to \$17,499	<input type="radio"/> \$60,000 to \$64,999
<input type="radio"/> \$17,500 to \$19,999	<input type="radio"/> \$65,000 to \$69,999
<input type="radio"/> \$20,000 to \$22,499	<input type="radio"/> \$70,000 to \$74,999
<input type="radio"/> \$22,500 to \$24,999	<input type="radio"/> \$75,000 to \$79,999
<input type="radio"/> \$25,000 to \$27,499	<input type="radio"/> \$80,000 to \$89,999
<input type="radio"/> \$27,500 to \$29,999	<input type="radio"/> \$90,000 to \$99,999
<input type="radio"/> \$30,000 to \$34,999	<input type="radio"/> \$100,000 to \$124,999
<input type="radio"/> \$35,000 to \$39,999	<input type="radio"/> \$125,000 to \$149,999
<input type="radio"/> \$40,000 to \$44,999	<input type="radio"/> \$150,000 to \$199,999
<input type="radio"/> \$45,000 to \$49,999	<input type="radio"/> \$200,000 or more

Chapter 11. Puerto Rico and the Outlying Areas

The question on contract rent (H12) also was the same for Puerto Rico as for the States, with the following modifications: The contract rent categories for Puerto Rico ranged from "less than \$30" to "\$400 or more"; on the mainland, the contract rent categories ranged from "less than \$50" to "\$500 or more." Although in both the States and Puerto Rico the question was asked for all renter-occupied and vacant-for-rent homes, the tabulated data for Puerto Rico excluded one-family homes on 3 cuerdas or more of land, while in the United States tabulation excluded one-family homes on 10 or more acres.

H12. Si usted paga alquiler por su vivienda — ¿Cuál es el alquiler mensual?

Si no paga el alquiler mensualmente, vea en el manual de referencia cómo calcular el alquiler mensual.

<input type="radio"/> Menos de \$30	<input type="radio"/> \$140 a \$149
<input type="radio"/> \$30 a \$39	<input type="radio"/> \$150 a \$159
<input type="radio"/> \$40 a \$49	<input type="radio"/> \$160 a \$169
<input type="radio"/> \$50 a \$59	<input type="radio"/> \$170 a \$179
<input type="radio"/> \$60 a \$69	<input type="radio"/> \$180 a \$189
<input type="radio"/> \$70 a \$79	<input type="radio"/> \$190 a \$199
<input type="radio"/> \$80 a \$89	<input type="radio"/> \$200 a \$224
<input type="radio"/> \$90 a \$99	<input type="radio"/> \$225 a \$249
<input type="radio"/> \$100 a \$109	<input type="radio"/> \$250 a \$299
<input type="radio"/> \$110 a \$119	<input type="radio"/> \$300 a \$349
<input type="radio"/> \$120 a \$129	<input type="radio"/> \$350 a \$399
<input type="radio"/> \$130 a \$139	<input type="radio"/> \$400 o más

H12. If you pay rent for your living quarters — What is the monthly rent?

If rent is not paid by the month, see the Questionnaire Reference Book on how to figure a monthly rent.

<input type="radio"/> Less than \$30	<input type="radio"/> \$140 to \$149
<input type="radio"/> \$30 to \$39	<input type="radio"/> \$150 to \$159
<input type="radio"/> \$40 to \$49	<input type="radio"/> \$160 to \$169
<input type="radio"/> \$50 to \$59	<input type="radio"/> \$170 to \$179
<input type="radio"/> \$60 to \$69	<input type="radio"/> \$180 to \$189
<input type="radio"/> \$70 to \$79	<input type="radio"/> \$190 to \$199
<input type="radio"/> \$80 to \$89	<input type="radio"/> \$200 to \$224
<input type="radio"/> \$90 to \$99	<input type="radio"/> \$225 to \$249
<input type="radio"/> \$100 to \$109	<input type="radio"/> \$250 to \$299
<input type="radio"/> \$110 to \$119	<input type="radio"/> \$300 to \$349
<input type="radio"/> \$120 to \$129	<input type="radio"/> \$350 to \$399
<input type="radio"/> \$130 to \$139	<input type="radio"/> \$400 or more

H12. If you pay rent for your living quarters — What is the monthly rent?

If rent is not paid by the month, see the instruction guide on how to figure a monthly rent.

<input type="radio"/> Less than \$50	<input type="radio"/> \$160 to \$169
<input type="radio"/> \$50 to \$59	<input type="radio"/> \$170 to \$179
<input type="radio"/> \$60 to \$69	<input type="radio"/> \$180 to \$189
<input type="radio"/> \$70 to \$79	<input type="radio"/> \$190 to \$199
<input type="radio"/> \$80 to \$89	<input type="radio"/> \$200 to \$224
<input type="radio"/> \$90 to \$99	<input type="radio"/> \$225 to \$249
<input type="radio"/> \$100 to \$109	<input type="radio"/> \$250 to \$274
<input type="radio"/> \$110 to \$119	<input type="radio"/> \$275 to \$299
<input type="radio"/> \$120 to \$129	<input type="radio"/> \$300 to \$349
<input type="radio"/> \$130 to \$139	<input type="radio"/> \$350 to \$399
<input type="radio"/> \$140 to \$149	<input type="radio"/> \$400 to \$499
<input type="radio"/> \$150 to \$159	<input type="radio"/> \$500 or more

(U.S.) =

A number of housing items, which were not included in any of the stateside questionnaires, were asked for *sample* housing units in Puerto Rico. These items, on subjects considered to be especially descriptive of housing in Puerto Rico, were as follows by number (the items are shown in Spanish and English as they appeared on the respective versions of the questionnaire):

H18. ¿Tiene esta vivienda alumbrado eléctrico?

☐ Sí ☐ No

H18. Does this housing unit have electric lighting?

☐ Yes ☐ No

H29. ¿Qué describe mejor el tipo de construcción de este edificio?

Llene un círculo solamente.

Paredes de mampostería o concreto (concreto armado, bloques de concreto, piedra, bloques ornamentales, etc.)

☐ Con techo de concreto

☐ Con techo de madera

Paredes de madera

☐ Con cimientos de mampostería o concreto armado, etc.

☐ Con cimientos de pilotes de madera

☐ Paredes de mampostería o concreto y madera

☐ Otro tipo de construcción

H30. Condición de esta vivienda — Conteste por observación

a. Construcción original:

☐ Adecuada ☐ Inadecuada

b. Si "adecuada" — la condición actual es:

☐ Buena ☐ Deteriorándose ☐ Dilapidada

H31—H32. Haga las preguntas H31 y H32 si esta vivienda es propiedad de o está siendo comprada por un miembro de este hogar.

H31. ¿Es el dueño de la unidad también dueño del solar o alquila el solar?

☐ Dueño o está comprando el solar

☐ Paga alquiler por el solar

☐ No paga alquiler en efectivo por el uso del solar

H32. Si el solar es alquilado — ¿Cuánto paga mensualmente por el solar?

\$ _____ .00

(Al dólar más cercano)

H29. Which best describes the type of construction of this building?

Fill only one circle.

Masonry walls (poured concrete, concrete blocks, stone, ornamental blocks, etc.)

☐ With concrete slab roof

☐ With wood frame roof

Wood frame walls

☐ With masonry foundation, poured concrete, etc.

☐ With wood stilt foundation

☐ Mixed masonry and wood walls

☐ Other type of construction

H30. Condition of this housing unit — Fill from observation.

a. Original construction:

☐ Adequate ☐ Inadequate

b. If "adequate" — present condition is:

☐ Sound ☐ Deteriorating ☐ Dilapidated

H31—H32. Ask questions H31 and H32 if this unit is owned or being bought by a member of this household.

H31. Is the owner of this housing unit also owner of the land or is the land being rented?

☐ Owns or is buying the land

☐ Pays rent for the land

☐ Does not pay cash rent for the use of the land

H32. If the land is being rented — What is the monthly rent for the land?

\$ _____ .00

(Nearest dollar)

In addition to the variations in questionnaire content noted above, a number of the questions asked for sample housing units in Puerto Rico differed in scope or in the response categories provided for the corresponding questions on the mainland. The major differences are described below.

Chapter 11. Puerto Rico and the Outlying Areas

In both the United States and Puerto Rico, the sample questionnaire included questions on lot size and value of farm products sold. On the mainland, housing units on city or suburban lots or on places of less than 1 acre were automatically classified as nonfarm; places of 1 or more acres were classified as farms if they had gross sales of \$1,000 or more in 1979; and farms were further subdivided by size ("1 to 9 acres" and "10 or more acres") and by sales (with categories ranging from "\$50 or less" to "\$2,500 or more"). In Puerto Rico, the questions were similar to those asked in the United States, but the size and value categories were different: rural housing units were on either "less than 3 *cuerdas*" or "3 or more *cuerdas*," while the value categories ranged from "\$1 to \$99" to "\$500 or more." On the mainland, the lowest category was also used for places which had no sales; in Puerto Rico, there was a separate response category for places with no farm sales.

H13a. ¿Está situado este edificio —

- ☐ En un solar de la ciudad o suburbio? — *Pase a la pregunta H14*
- ☐ En un predio de menos de 3 cuerdas?
- ☐ En un predio de 3 cuerdas o más?

b. ¿El año pasado, 1979, ascendieron las ventas de cosechas, ganado y otros productos agrícolas en este lugar a —

- ☐ \$1 a \$99
- ☐ \$100 a \$199
- ☐ \$200 a \$299
- ☐ \$300 a \$499
- ☐ \$500 o más
- ☐ No hubo ventas

H13a. Is this building —

- ☐ On a city or suburban lot? *Skip to H14*
- ☐ On a place of less than 3 cuerdas?
- ☐ On a place of 3 or more cuerdas?

b. Last year, 1979, did sales of crops, livestock, and other farm products from this place amount to —

- ☐ \$1 to \$99
- ☐ \$100 to \$199
- ☐ \$200 to \$299
- ☐ \$300 to \$499
- ☐ \$500 or more
- ☐ None

(U.S.) =

H15a. Is this building —

- ☐ On a city or suburban lot, or on a place of less than 1 acre? — *Skip to H16*
- ☐ On a place of 1 to 9 acres?
- ☐ On a place of 10 or more acres?

b. Last year, 1979, did sales of crops, livestock, and other farm products from this place amount to —

- ☐ Less than \$50 (or None)
- ☐ \$50 to \$249
- ☐ \$250 to \$599
- ☐ \$600 to \$999
- ☐ \$1,000 to \$2,499
- ☐ \$2,500 or more

The question on source of water was the same in the United States and Puerto Rico, but the response categories were different. The Puerto Rico questionnaire distinguished among the public water system, an individual well, "a cistern, tanks, or drums," and other sources. The mainland version provided two categories for wells (drilled and dug) and included a single answer category for both public and private systems.

H14. ¿Obtiene usted agua para su vivienda de —

- ☐ Un acueducto público?
- ☐ Un pozo privado?
- ☐ Aljibe, tanques o drones?
- ☐ Manantial u otra fuente (río, canal de riego, etc.)?

H14. Do you get water from —

- ☐ A public system?
- ☐ An individual well?
- ☐ A cistern, tanks, or drums?
- ☐ A spring or other source (river, irrigation canal, etc.)?

(U.S.) =

H16. Do you get water from —

- ☐ A public system (city water department, etc.) or private company?
- ☐ An individual drilled well?
- ☐ An individual dug well?
- ☐ Some other source (a spring, creek, river, cistern, etc.)?

The stateside inquiry on fuel used to heat water was limited to tank-type water heaters in Puerto Rico. The mainland version contained eight answer categories while the Puerto Rican inquiry had four possible responses.

H19. ¿Qué tipo de energía usa mayormente su calentador de agua (tipo tanque)? Si tiene calentador de ducha solamente, marque "No hay calentador tipo tanque."

- ☐ Electricidad
- ☐ Energía solar
- ☐ Otros combustibles
- ☐ No hay calentador tipo tanque

H19. What type of energy does your water heater (tank type) use most? If shower heater only, mark "No tank type water heater."

- ☐ Electricity
- ☐ Solar energy
- ☐ Other fuels
- ☐ No tank type water heater

(U.S., H21) =

b. Which fuel is used most for water heating?

- ☐ Gas: from underground pipes serving the neighborhood
- ☐ Gas: bottled, tank, or LP
- ☐ Electricity
- ☐ Fuel oil, kerosene, etc.
- ☐ Coal or coke
- ☐ Wood
- ☐ Other fuel
- ☐ No fuel used

In both the States and Puerto Rico, the question on cooking fuel was identically worded. Seven of the eight answer categories were also identical in both areas. The remaining category referred to "coal or coke" in the States and to "charcoal" in Puerto Rico.

H20. ¿Cuál combustible usa principalmente para cocinar?

- ☐ Gas por tuberías subterráneas que sirven a toda la comunidad
- ☐ Gas en cilindros, tanques o petróleo líquido
- ☐ Electricidad
- ☐ Aceite combustible, queroseno, etc.
- ☐ Carbón vegetal
- ☐ Leña
- ☐ Otra clase de combustible
- ☐ No uso combustibles

H20. Which fuel is used most for cooking?

- ☐ Gas: from underground pipes serving the neighborhood
- ☐ Gas: bottled, tank, or LP
- ☐ Electricity
- ☐ Fuel oil, kerosene, etc.
- ☐ Charcoal
- ☐ Wood
- ☐ Other fuel
- ☐ No fuel used

(U.S., H21) =

c. Which fuel is used most for cooking?

- ☐ Gas: from underground pipes serving the neighborhood
- ☐ Gas: bottled, tank, or LP
- ☐ Electricity
- ☐ Fuel oil, kerosene, etc. ☒
- ☐ Coal or coke
- ☐ Wood
- ☐ Other fuel
- ☐ No fuel used ☒

The question on utility costs (H21) asked for monthly water expenditures in Puerto Rico but requested yearly figures for the States.

c. Agua

\$ _____ .00 ☒ ☐ Incluido en el alquiler o no hay cargo
Costo promedio mensual

c. Water

\$ _____ .00 OR ☐ Included in rent or no charge
Average monthly cost

(U.S., H22) =

c. Water

\$ _____ .00 OR ☐ Included in rent or no charge
Yearly cost

While the inquiry on the number of bathrooms per housing unit was identically worded in the States and Puerto Rico, the answer categories varied slightly. In the U.S. questionnaire, the first response category combined "no bathroom" with a "half bathroom." In the Puerto Rican questionnaire, each of these responses appeared separately.

H24. ¿Cuántos cuartos de baño tiene su vivienda?

Un cuarto de baño completo es un cuarto con un inodoro, una bañera o ducha y un lavamanos con agua por tuberías.

Un medio cuarto de baño tiene, por lo menos, un inodoro o bañera o ducha, pero no tiene todas las facilidades de un cuarto de baño completo.

- ☐ Ninguno
- ☐ Sólo medios cuartos de baño
- ☐ 1 cuarto de baño completo
- ☐ 1 cuarto de baño completo más medios cuartos de baño
- ☐ 2 o más cuartos de baño completos

H24. How many bathrooms do you have?

A complete bathroom is a room with flush toilet, bathtub or shower, and wash basin with piped water.

A half bathroom has at least a flush toilet or bathtub or shower, but does not have all the facilities for a complete bathroom.

- ☐ None
- ☐ Only half bathrooms
- ☐ 1 complete bathroom
- ☐ 1 complete bathroom, plus half bath(s)
- ☐ 2 or more complete bathrooms

(U.S.) =

H25. How many bathrooms do you have?

A complete bathroom is a room with flush toilet, bathtub or shower, and wash basin with piped water.

A half bathroom has at least a flush toilet or bathtub or shower, but does not have all the facilities for a complete bathroom.

- ☐ No bathroom, or only a half bathroom
- ☐ 1 complete bathroom
- ☐ 1 complete bathroom, plus half bath(s)
- ☐ 2 or more complete bathrooms

In the United States, the question on mortgages also mentioned deeds of trust and contracts to purchase; in Puerto Rico, the question asks only for mortgages and other debt. On this issue, the U.S. questionnaire contained three answer categories while the Puerto Rican version had only two categories.

H35a. ¿Tiene usted alguna hipoteca o deuda semejante sobre esta propiedad?

- ☐ Sí, hipoteca o deuda semejante
- ☐ No — *Pase a la página 6.*

H35a. Do you have a mortgage or similar debt on this property?

- ☐ Yes, mortgage or similar debt
- ☐ No — *Skip to page 6*

(U.S.) =

H32a. Do you have a mortgage, deed of trust, contract to purchase, or similar debt on this property?

- ☐ Yes, mortgage, deed of trust, or similar debt
- ☐ Yes, contract to purchase
- ☐ No — *Skip to page 6*

The following sample housing items asked in the United States were not included in the Puerto Rico questionnaire:

Number of floors in building

Elevators in building

Heating equipment

Heating fuel

Preparatory Work

Map preparation—Maps illustrated the areas to be covered by each enumerator, crew leader, and supervisor. In June 1977, the Puerto Rico Planning Board (PRPB) agreed to update the maps for Puerto Rico, define and delineate enumeration districts (ED's), and provide the Bureau of the Census with a current set of place maps for a number of settlements. Using the PRPB's specifications, Census Bureau personnel at the

Jeffersonville, IN, facility prepared the base maps by consolidating U.S. Geological Survey topographic quadrangle maps (or "quads") by municipio (the county-level geographic unit in Puerto Rico). All updates provided by the PRPB, ED boundaries and numbers, block numbers, and other boundaries used for the 1980 census were made on the municipio-formatted base maps and on Metropolitan Map Series maps and place maps. These preliminary overlays were used to prepare final office, supervisor, crew leader, and enumerator maps. (See ch. 3 for more detail on map production.) Together with various control listings, these maps were then shipped to Puerto Rico.

ED's in Puerto Rico were delineated to include approximately 140 housing units and 550 persons. (This was roughly half the size of a conventional stateside ED.) Based on final census counts, each of Puerto Rico's 6,193 ED's averaged about 160 housing units and 516 persons. The Census Bureau did not distinguish between rural and urban ED's.

Census tracts were delineated in the five SMSA's (standard metropolitan statistical areas)—Arecibo, Caguas, Mayagüez, Ponce, and San Juan—and in two non-SMSA municipios (Aguadilla and Peñuelas). The PRPB delineated 463 census tracts, to which the Census Bureau added two crews-of-vessels tracts. The urbanized areas of the 5 SMSA's and 12 other places were included in the block statistics program; this involved the numbering and separate identification of approximately 15,600 blocks and 108 block-numbering areas (BNA's) on census maps.

Training materials—*The Enumerator's Manual* (D-549-PR) was the basic training document written for the field staff. It delineated the enumerators' duties and responsibilities and contained detailed instructions on how to obtain the required information for the items on the questionnaires. Enumerators were encouraged to carry their manuals with them in the field and to refer to them when questions arose. Among the other training materials prepared for use in Puerto Rico were the *Crew Leader's Manual* (D-555-PR), the *Field Operations Supervisor's Manual* (D-529-PR), the *Office Operations Manual* (D-509-PR), the *District Office Administrative Manual* (D-503-PR), and the *District Manager's Manual* (D-508-PR). Training guides were prepared to accompany the principal manuals, and numerous reporting forms were developed for the management of field operations.

Enumerators' and crew leaders' manuals were printed in Spanish only; photocopied English versions were made available to non-Spanish-speaking administrative personnel in Puerto Rico and at headquarters. All other district office training manuals, with the exception of the district manager's manual, were issued in both English and Spanish. The Spanish versions were used almost exclusively in Puerto Rico, but headquarters staff relied on both versions. As in 1960 and 1970, the standard U.S. census instructions and training materials were modified for use in Puerto Rico in 1980 whenever possible. Most of the translations were made by 2 Census Bureau

employees, who were Puerto Ricans by birth and translators by profession, and by 10 other Hispanic staff members who were fluent in Spanish. Additional translations were contracted out to firms and individuals in New York and in the Washington, DC area; their work was reviewed thoroughly by Census Bureau employees before being accepted for publication.

Training materials were assembled in the Census Bureau's Jeffersonville, IN, facility and were shipped to Puerto Rico. Over 16,000 training and instructors' kits were prepared for regular, followup, and special-place enumerators and crew leaders. These kits contained the forms, manuals, and other materials needed to train new employees as enumerators. For example, the enumerator's kit (649A-PR) contained one or more copies of all the major census forms and envelopes, a pay voucher and travel expense record, three training manuals, a workbook, a self-study guide, a PEPOC card, an identification card and holder, writing supplies, FOSDIC correction dots, an ED map, a training address register, and a box of rubber bands. (App. 11A presents the number of training and instructors' kits assembled, by type.)

Space and facilities—Space for the eight district offices was obtained under the Census Bureau's delegated leasing authority. Market surveys and lease acquisitions were conducted by local census personnel under review by the Administrative Services Division. Additional space for the area office was obtained in the Federal Court House in Hato Rey (San Juan) through the General Services Administration. Three of the eight district offices were in Commonwealth-owned buildings, and five were in commercial space. The annual cost of the non-Federal space averaged \$8.65 per square foot.³ Some office furniture was shipped from the mainland, some was borrowed from other Federal agencies, and some equipment, such as pocket calculators, was purchased locally. Telephone service was arranged locally.

The area office opened in December 1979; the eight district offices—two in San Juan and one each in Carolina, San Lorenzo, Ponce, Aguadilla, Arecibo, and Bayamón—opened at the end of January 1980.

On March 19, 1980, the Governor issued a proclamation to the inhabitants of Puerto Rico, urging them to participate in the census and underscoring the importance and benefits of cooperation.

Other preparatory work—To aid in the enumeration of group quarters (places with unusual or difficult-to-classify living arrangements which required different census procedures), the Decennial Census Division at Bureau headquarters prepared a list of

³Excludes the nominal rental fees of \$1.00 per month paid for the San Lorenzo and Aguadilla offices. The Census Bureau paid \$12,180 and \$20,816, respectively, to renovate and prepare these offices. Most office space had to be leased for 1 year; no cost savings could be realized even though the space was used for only 8 months.

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hotels, jails, hospitals, orphanages, college dormitories, military installations, and other types of special places. This list was constructed in 1979, using telephone directories and lists prepared by the U.S. Department of Defense and the Commonwealth Departments of Education and Social Services.

Over 20,000 supply kits were assembled in Jeffersonville and shipped to San Juan (see app. 11B for a listing of the kits sent, by type.) The contents of these kits ranged from office supplies and forms to the notebooks of forms used by enumerators and crew leaders.

Nearly 4.7 million data-collection forms were printed and shipped to Puerto Rico, either in bulk or as parts of the supply kits referred to above. (For a breakdown of the type and quantity of data-collection forms sent to Puerto Rico, see app. 11C.)

The bulk of the materials and supplies needed for the enumeration in Puerto Rico were shipped to a vacant U.S. Air Force base exchange that served as the district office (DO) in Aguadilla, and distributed to the other DO's from there. The initial shipment arrived in February. Smaller, followup shipments were sometimes directed to the area office in San Juan for distribution and sometimes shipped directly to the DO.

Field Organization

To collect the desired information for the 3.2 million persons and more than 969,000 housing units in Puerto Rico required a temporary field staff of approximately 7,000 persons, including a central office manager (area manager) and assistant manager, who directed the field operations; 8 district managers and their 8 assistants; approximately 500 crew leaders; about 6,100 enumerators; and over 300 clerks in the area and district offices.

The entire census staff, from the area manager and his chief assistant to the clerks and enumerators, was hired in Puerto Rico. In contrast with 1970, when the Commonwealth Department of Education recruited school superintendents and principals to serve as crew leaders and teachers to serve as enumerators, recruitment for the 1980 census was from the public at large, and was managed from the San Juan area office by the regional recruiting coordinator, who reported directly to headquarters in Suitland, MD. In each district office, a field operations assistant for employment was responsible for advertising positions, testing and interviewing applicants, and hiring. In addition to hiring a substantial contingent of political referrals, the field operations assistants also relied on referrals from the Commonwealth Department of Labor and used newspaper advertisements to identify and recruit census personnel. All candidates were given tests to determine their eligibility for appointment. Space was allocated in the district offices for testing and training.

A small number of enumerators were hired to complete the enumeration of institutions and other special living quarters. Military personnel within the larger installations were appointed as temporary census employees to complete the enumeration of personnel assigned to operating units on military bases.

Payroll

Payroll units in the area office and in each district office monitored the time and attendance logs for hourly and salaried employees. Payroll checks were issued by the U.S. Treasury in Birmingham, AL, and were mailed directly from there to employees in Puerto Rico. The following pay rates were established for Puerto Rico (the wage scale reproduced below includes a 10-percent cost-of-living adjustment (COLA) that took effect in FY 1980).

Position title	Pay rate
Enumerator	
A. Hourly rate, \$4.40 per hour (except for training and when working at piece rates)	-
B. Piece rates as follows:	
Short questionnaire (occupied housing units only)	\$ 2.40
Long questionnaire (occupied housing units only)	4.45
Vacant units (long or short questionnaire)	2.05
PEPOC card	.07
T-Night place	1.65
T-Night packet	.04
Time en route (per mile)	.16
C. Additional payments:	
Satisfactory completion of group training	60.00
Satisfactory completion of on-the-job training	3.75 per hour
Mileage (per mile, where authorized)	.185
District manager	10.80 per hour
Field operations supervisor	8.95 per hour
Field operations assistant	5.95 per hour
Office operations assistant	5.60 per hour
Senior administrative clerk	5.60 per hour
Senior office clerk	4.40 per hour
Office services clerk	4.25 per hour
Clerk	3.90 per hour
Crew leader	4.95 per hour

These administratively determined pay rates were calculated by adding the 10-percent COLA to the rates for temporary census field employees working in conventional DO's on the

mainland. Whereas the wage scale used by the Census Bureau during the 1970 census was considered extremely low, 1980 pay rates were viewed as very competitive. Since the 1980 census was taken during a period of relatively high unemployment in Puerto Rico and the Census Bureau offered competitive wages, the agency did not experience the recruiting difficulties it had faced in 1970.

Data Collection

Enumeration procedures—The enumeration of Puerto Rico was conducted by a combination of self-enumeration and personal interview similar to the conventional procedure used in the United States (see ch. 5). In areas with postal delivery service, an unaddressed advance census report (form D-13-PR), containing a short questionnaire, a form letter, a Privacy Act notice, and a detachable instruction sheet, was delivered by a postal carrier to every housing unit on his or her route several days before Census Day, April 1, 1980. In areas without carrier delivery service, questionnaires were available where people picked up their mail. Householders were asked to fill out the questionnaire and give it to the enumerator when he or she visited the household.

Beginning on March 31, 1980, each enumerator systematically canvassed his or her assigned area, listed all housing units in an address register (form D-104-PR) in the order they were encountered, and marked the location of each housing unit and special place on his or her enumeration district map. Completed questionnaires were collected from each household. During the enumerator's visit, incomplete and unfilled forms were completed by interview and inconsistencies resolved. At every sixth household or housing unit, the enumerator administered the sample questionnaire by transferring the complete-count information from the short form to the D-2-PR long form, asking the remaining questions, and recording the household's responses. The enumeration process was completed in approximately 4 weeks.

Special questionnaires were used for the enumeration of persons in group quarters such as college and university dormitories, prisons, and military installations. These forms contained the same population questions that appeared on the long and short questionnaires but did not include any housing questions. (For a detailed discussion of the questionnaires and enumeration procedures used in special places, see ch. 5, pp. 39ff.)

Followup enumeration—The followup operation consisted of several procedures for obtaining information missed or recorded incorrectly during the regular enumeration. In the recanvass, address registers of ED's that failed the coverage check were given to enumerators who listed the addresses of housing units missed during the regular enumeration and then enumerated the added units. During failed-edit followup, enumerators obtained additional information from households which had refused to

be enumerated during the regular enumeration, had turned in faulty or inconsistent questionnaires, or had been selected for resampling. The problem of lost or misleading questionnaires was also rectified during followup. In the unit status review, enumerators visited addresses classified as vacant to ensure that the original classification was correct.

Control of field operations—As in previous censuses, the work of each enumerator was reviewed by a crew leader before the enumerator was paid. Forms of less than acceptable quality were returned to the enumerator for additional work. Along with other checks on quality and completeness, the crew leader prepared for each of his or her ED's an advance listing of 24 addresses that was later compared with the enumerator's completed listing book. If an enumerator's work was found to be unacceptable, the area was recanvassed during followup enumeration. Several progress-reporting forms were used to determine whether enumerators were on schedule and to keep the central office informed of overall progress.

Local review—Beginning in late June, the Census Bureau sent preliminary population and housing-unit (both occupied and vacant) figures for each ED to local elected officials for their comments. Over the next 6 weeks, most officials accepted the figures provided and notified the Census Bureau of their acceptance. However, officials from several municipios, including San Juan, contested the Census Bureau's numbers. During the month of August, these disagreements were resolved through negotiations and, on several occasions, by recounting a small number of contested areas.

Problems—The enumeration was hampered by incorrectly packed kits of forms and supplies, resulting in heavy demand from the DO's for the official Census Bureau car (which was assigned to the area office in San Juan). To redistribute census materials among the various DO's, the agency relied on the use of automobiles owned or driven by employees, who were reimbursed for mileage. The preparation of payroll checks by non-Spanish-speaking Treasury employees in Birmingham, AL, also caused problems. Lack of familiarity with Spanish naming conventions and with the distinctive Puerto Rican address system led to frequent errors in the names appearing on Federal paychecks and to the misaddressing of checks. These errors probably contributed to the relatively high incidence of lost checks in Puerto Rico, although errors in the Postal Service's handling of these checks may also have been involved. While most of the enumeration district (ED) maps arrived in Puerto Rico on time, some were printed backwards. Once this was discovered, enumerators had to be taught how to read them because not enough time was available to order, print, and ship replacement copies. More importantly, many of the maps were inadequately updated; as a result, new streets did not always appear on these maps, and closed streets were not systematically removed. In addition, a number of the maps

were reproduced with incorrect scales, and the placement and dimensions of natural features were not always accurate. Incorrect maps made the enumerator's task more difficult. Finally, rising crime rates in portions of San Juan and other areas made some householders reluctant to open the door when the enumerator arrived to pick up the completed questionnaires. However, census enumerators were trained to be courteous but persistent, and the Puerto Rico enumeration was among the first completed in 1980.

Field processing—Data collection was virtually complete by the middle of August, and all district offices except Bayamón were closed by the beginning of September. The questionnaires and other materials were collected at the district office in Bayamón for preliminary processing. Written entries for industry and occupation on the sample questionnaires were reviewed, and the nearest English equivalent of the Spanish entry was written just above the response on the questionnaire. (The review and translation of these entries was supervised by a Census Bureau employee, assisted by technical experts from the Bureau of Labor Statistics of the Commonwealth Department of Labor.) This translation made it possible to have the industry and occupation entries coded by the regular coding staff in Laguna Niguel, CA. Preliminary population counts were compiled in the area office, and the counts for the island and all municipios were released on June 26-27, 1980. Area office operations were completed in September, and that office closed after the district offices had shipped their population and housing census materials to Bayamón.

Processing the Data

At the Bureau's facility in Laguna Niguel, CA, the Puerto Rico questionnaires were processed in much the same manner as those for the United States. (These procedures are described in detail in ch. 6.) The following minor variations in processing procedures were required to handle the Puerto Rican questionnaires:

Coding—Following a clerical check for inconsistent and missing data, the questionnaires were sent to the industry and occupation coding operation. As noted above, industries and occupations had been translated into English in Puerto Rico; in Laguna Niguel, they were assigned codes following established procedures. Problem cases were referred to Spanish-speaking technicians. A geographic reference identification number (GRIN) system was prepared for Puerto Rico for the place-of-work coding operation, which corresponded in format with the GRIN for the United States. This system permitted the coders to enter numeric codes for each area for which these data were to be tabulated. General coders used a list of translations to code the written entries specifying relationship to head of household; problem cases were referred to Spanish-speaking technicians or supervisors.

Computer editing and allocation procedures—After the Puerto Rico questionnaires were microfilmed, data were transferred to magnetic tapes in the FOSDIC operation. These tapes were then shipped to Bureau headquarters in Suitland where they were processed through the various computer routines written for Puerto Rico. The programs for editing unacceptable entries and allocating missing data were modified versions of those used on U.S. data. The weighting of sample data followed the U.S. pattern. (For a detailed description of the editing, allocation, and weighting procedures used in the 1980 U.S. census, see chs. 6 and 12.) Special editing programs were written to handle the items on the Puerto Rico questionnaires that did not appear on the U.S. questionnaires.

Tabulation and Publication

The tabulation program for Puerto Rico was designed to provide data as nearly comparable as possible to those published for the United States. Prior to the writing of the computer programs that generated the tabulations, and again after table outlines for the several printed publications planned for Puerto Rico were produced, the Bureau gave officials of the Commonwealth Government opportunities to review the proposed tables. No comments on the final table outlines were received. To assure comparability with U.S. statistics and to enable minimally modified computer programs (originally written to process U.S. data) to tabulate the Puerto Rico data, some restrictions were imposed on the kinds and level of detail provided in the printed reports.

For Puerto Rico, as for the United States, five tabulation files and three public-use microdata sample files were prepared. These tabulations produced the population and housing data that the Bureau published in printed reports and on microfiche and served as the basis for producing five summary tape files (STF's) and three public-use microdata sample files that were similar in scope and content to the summary tape files prepared for the States. (See ch. 8 for a fuller description of these tape files.)

Printed reports for Puerto Rico were published in Spanish and English. Spanish and English versions of some reports were published together in the same volume while others appeared as separate volumes. (For a complete listing of the printed reports from the 1980 census, see ch. 8, app. 8A.) Puerto Rican data were included in the series of preliminary and advance population reports and in the following final series: Population, PC80-1-A, B, C, and D; Housing, HC80-1-A and B, and HC80-2; and joint Population and Housing, PHC80-1, 2, and 3, and PHC80-SP. The following steps were taken to prepare the final reports for Puerto Rico:

Text

1. English text prepared and typed
2. English text translated into Spanish

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Text—Con.

3. English and Spanish text composed in galley form and sent to sponsoring division for review
4. Mocked-up version of corrected galleys made up and sent to sponsoring division for review
5. Final camera copy put together by hand from corrected galleys
6. Camera copy reviewed and corrected

Tables

1. Table outlines prepared by sponsoring division and approved
2. Table outlines translated into Spanish
3. Computer programs to produce base table image (page-image) files written and tested
4. Table counts generated by UNIVAC 1108 and reviewed by sponsoring division
5. Diacritical marks added to Spanish names and words
6. Photocopies of page-image files and table counts combined by hand
7. Final camera copy reviewed and corrected

Charts

1. Black-and-white chart sketches designed in English and Spanish, reviewed, and approved
2. Sponsoring division provided specifications and data for each chart
3. Separate programs for each type of chart run on UNIVAC 1108 and electronic output sent to COMP 80/2 for processing and production of camera-ready charts on photosensitive paper
4. Final camera copy reviewed and corrected

Text, tables, and charts

1. Page numbers and running feet (publication and series titles placed at bottom of each page)
2. Report reviewed and corrected
3. Report sent to print

Nearly all the printed reports for Puerto Rico required extensive manual preparation before they were ready to be phototypeset. Since the phototypesetting process used to produce the 1980 census reports lacked the diacritical marks needed for Spanish text, these marks had to be added by hand. The Government Printing Office (GPO) subcontracted the printing of the Puerto Rico publications to private firms, which produced the reports using standard offset printing procedures. (For additional information on the technological aspects of printing census reports, descriptions of the various printed report and summary tape file series, and release dates for those pertaining to Puerto Rico, see ch. 8.)

The preparation of the Puerto Rico publications took longer than originally scheduled because of unanticipated delays in modifying the computer software used to process the questionnaires.

OUTLYING AREAS

Arrangements for the Censuses

Between January and March 1980, agreements on conducting the 1980 census were signed by the Governors of American Samoa, Guam, the Northern Mariana Islands, and the Virgin Islands. A similar agreement was signed in May 1980 by the High Commissioner of the Trust Territory of the Pacific Islands (excluding the Northern Marianas). The Census Bureau agreed to provide the maps, questionnaires, instructions, training materials, and office supplies; to appoint census advisors to work with the census project manager in each area; and to process and publish the data. In each area, the Governor or High Commissioner appointed a census coordinator who was responsible for recruiting and training the staff, handling appointments and payrolls, locating space and equipment, submitting regular reports on the status of the census, mounting publicity campaigns, reviewing post-census counts, and shipping the census forms back to the Bureau. The Census Bureau appointed its own employees as census advisors for each area; their responsibilities included administering the oath of office to the census coordinator, training the coordinator on census office and field operations, providing technical advice, establishing new procedures or adapting old ones as needed, assisting the census coordinator in training and swearing in other census employees, and certifying payroll and other cost reports to ensure that costs did not exceed the authorized budget.

For the five areas in which agreements were made with the Governor or ranking official to take the census, the censuses included both population and housing inquiries. In American Samoa and the Northern Mariana Islands, an agriculture census was also taken. (For a discussion of the agricultural census of these areas, see Bureau of the Census, 1978 Census of Agriculture, *Procedural History* (1983), pp. 84-87.)

In 1980 the Census Bureau obtained population counts for Midway Island, Johnston Atoll, and Wake Island from the U.S. Navy, U.S. Air Force, and Defense Nuclear Agency. No population characteristics were collected, tabulated, or published.

Data-collection forms—For each of the five major outlying areas, a separate household questionnaire (forms D-80-AS, D-80-G, D-80-NM, D-80-TT, and D-80-VI) was used to collect population and housing data. (The D-80 questionnaires used in American Samoa and the Virgin Islands in 1980 are reproduced in app. C, Facsimiles of Selected Data-Collection Forms.) There was no sample; detailed data were collected for all inhabitants of the outlying areas. The Pacific Islands questionnaires were identical in content and varied somewhat from the Virgin Islands questionnaire (see below, for a more detailed comparison of the Virgin Islands and Pacific Islands questionnaires). The front covers of the questionnaires were similar; only the area names, page references, and form number suffixes changed. They allowed for entry of unique geographic information, as well as address or location; DO (district office), ED (enumeration district), and block numbers; and housing-unit serial number. The back cover contained space on which to record temporary residents' usual home addresses; the American Samoa and Northern Mariana Islands instruments also contained screening questions allowing the enumerator to determine whether the unit should be included in the agriculture census. The first 9 population items appeared first on the D-80 questionnaires (10 items were printed first in the Virgin Islands questionnaire), followed by 3 pages of housing questions and 2 more pages of population inquiries for each person (up to 7 persons) in the household. This arrangement was the most efficient for subsequent computerized data processing.

The D-20 Individual Census Reports (ICR's) were reproductions of the form D-80 pages for persons, and thus contained only the population items. This form was used to enumerate people living in hotels; group quarters such as college dormitories, barracks, institutions, or boarding houses; and for visitors in private households. As for 1970, the 1980 ICR had to be transcribed onto FOSDIC-readable questionnaires in the DO. Although the transcription was time-consuming, it was less costly than reprogramming the computers to process the ICR's directly.

In May 1979, the proposed housing and population items were submitted for comments to each of the governing officials of the five major areas, and to the extent feasible, their comments were incorporated in the design of the final questionnaires.

The form D-80 household questionnaires contained 31 population and 37 (27 in the Virgin Islands) housing items. These generally were the same as in the United States, with some modifications to meet local needs and interests. For example, on the mainland, the defining characteristic of a housing unit was the presence or absence of direct access to the unit. In American Samoa, the type of cooking facilities also played a

role in defining a housing unit. Housing items included inquiries on residential building materials, the presence of radio and television receivers, sources of water, and the location of cooking facilities.

Several population items differed from those used in the United States. The race and Spanish-origin items were included only on the Virgin Islands form (those for the other areas contained an ethnicity question instead). On all household questionnaires administered in the outlying areas, marital status included a separate category for "consensually married." Respondents were also instructed to report their parents' birthplaces. Pacific Islands questionnaires asked for the duration and timing of any periods of residence in the United States over the past 10 years; the analogous item in the version used in the Virgin Islands pertained to periods of residence outside those islands. Pacific Islands questionnaires also included several other modifications: Household members were asked if they could read and write in any language; respondents under 15 years of age were asked if their mothers lived in the same household; and the number-of-children-ever-born item included two additional questions on the number of children still alive and those born alive since April 1, 1979. Inhabitants also were asked about the extent of their vocational training, and their participation in subsistence fishing, agriculture, or production. In other respects, the population items were nearly identical to the complete-count and sample items asked on U.S. questionnaires.

Geographic preparations—In 1978 and 1979, the Bureau of the Census obtained boundary and map information for each of the five major areas from all available sources. In 1979, the Virgin Islands passed legislation that substituted minor civil divisions (MCD's, subcounty governmental units) for "quarters," the units used in earlier censuses. Each area was divided into ED's for assignment to enumerators. Guam and the Virgin Islands delineated ED's and census designated places (CDP's, administratively defined areas without legally established boundaries, usually with a population of at least 1,000). In the Northern Mariana Islands and the rest of the Trust Territory, the Census Bureau itself delineated CDP's. To delineate ED's, the Census Bureau adopted essentially the same ED boundaries used by the Trust Territory in its 1973 census. The ED's ranged in average size from approximately 275 people in the Northern Mariana Islands to just over 500 persons in the Virgin Islands. However, during the actual enumeration, some ED's were subdivided into two or more ED's in order to reduce or equalize enumerator workloads. The number of ED's finally delineated in each area was as follows:

American Samoa	113
Guam	220
Northern Mariana Islands	61
Trust Territory	413
Virgin Islands	192

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Census schedule—The Decennial Census Division's Outlying Areas Branch was responsible for planning and coordinating the enumeration of the outlying areas in 1980. The census activity schedule for American Samoa, Guam, the Northern Mariana Islands, and the Virgin Islands was as follows:

Operation	Begin	End
Planning	7/78	3/80
Preparation of training and enumeration materials	9/79	2/80
Opening of area offices	1/80	2/80
Shipment of training and enumeration materials to area offices	12/79	4/80
Recruitment of staff	1/80	4/80
Training of crew leaders and enumerators	3/80	4/80
Enumeration	4/80	6/80
Quality control and office review of report forms	4/80	6/80
Closing of area offices	6/80	8/80
Processing	3/81	12/84

Since the census of the Trust Territory was to begin on September 15, rather than on April 1, the schedule differed from that for the other outlying areas:

Operation	Begin	End
Planning	7/78	3/80
Preparation of training and enumeration materials	9/79	2/80
Opening of area offices	—	7/80
Shipment of training and enumeration materials to area offices	5/80	12/80
Recruitment of staff	7/80	10/80
Training of crew leaders and enumerators	8/80	9/80
Enumeration	9/80	12/80
Quality control and office review of report forms	9/80	12/80
Closing of area offices	11/80	12/80
Processing	3/81	12/84

Staffing and other preparatory work—In accordance with the terms of the agreements, the recruitment, training, and supervision of the field staff in each of the five major areas was the responsibility of a census supervisor designated by the Governor (or High Commissioner). In conjunction with these officials, the Census Bureau established a budget for the field work,

together with a suggested allocation of funds among wages, travel, office expenses, and other items. With minor exceptions, these budgets were adequate for completing the field work.

The organization and composition of census staffs in the outlying areas were similar, except that in the Trust Territory, and to a lesser extent in American Samoa, the staffs consisted largely of teachers. In the Trust Territory, Census Day was set for September 15 instead of April 1 so that the teachers' census training could be coordinated with their teacher training. The following table displays 1980 census staff size by position and area:

Position*	American Samoa	Guam	Northern Marianas	Trust Territory	Virgin Islands
Total	119	236	72	382	332
Census advisor	1	1	1	2	1
Census coordinator	1	1	1	1	1
Assistant coordinator	—	1	—	—	—
District coordinator	—	—	—	6	—
Census administrator	1	1	1	1	1
Administrative assistant	1	1	1	1	—
Clerks	4	20	4	10	31
Field operations supervisor (FOS)	1	—	—	—	2
Assistant FOS	—	—	—	—	2
Crew leaders	15	27	7	15	34
Enumerators	95	184	57	346	258
Custodial workers	—	—	—	—	2

*Note: A dash (—) in a column means that the position was not filled in that particular area.

Recruiting began in January 1980 (August in the Trust Territory). Except in the Trust Territory (where competitive testing was used only sparingly in the selection of local government personnel), candidates for employment were given written tests by the census coordinator, administrator, and/or census advisor; those who passed the test were interviewed before the final selection took place. Successful candidates were required to take an oath to protect the confidentiality of census information. While the Census Bureau provided the funding for the enumeration, payroll operations were handled by the local government; census employees were technically territorial, not Federal, employees. With the approval of the Census Bureau, the Virgin Islands established the following hourly pay rates for census personnel:

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Position	Pay rate
Census coordinator	\$ 8.65
Senior administrative clerk	4.05
Administrative control clerk	3.85
Field operations supervisor	7.25
Assistant FOS	6.00
General office clerk	4.05
Senior office clerk	4.05
Editing clerk	3.85
Crew leader	4.50
Enumerator	4.00
Custodial worker	3.10

Pay rates in the other outlying areas were established by the local governments, after consultation with the Census Bureau, and were generally comparable to those in the Virgin Islands.

Crew leaders and enumerators with facility in the local language as well as English were often required, since many of the inhabitants spoke little or no English. Particularly in the Trust Territory, the need for bilingual enumerators led to heavy reliance on schoolteachers.

In American Samoa, Guam, and the Northern Mariana and Virgin Islands, crew leaders were given a 3-day training session in mid-March 1980 to familiarize them with their pre-census, enumeration, followup, and field-review duties. Enumerators were trained for a total of 24 hours in the week immediately preceding Census Day, April 1, 1980.

In American Samoa and Guam, crew-leader training was held in central locations; centralized training was not feasible in the other areas because of transportation difficulties among the islands. At least two training sessions were conducted in the Northern Marianas and the Virgin Islands. Crew leaders were responsible for enumerator training, and training sessions were held in several locations.

In the Trust Territory, three crew-leader training sessions were held in mid-August 1980—one for crew leaders on Yap and Palau, another for those on Truk, Ponape, and Kosrae, and a third for those responsible for the Marshall Islands. As in the other outlying areas, enumerator training was generally conducted during the week prior to Census Day. However, in several cases, enumerator training had to be held in August to allow enumerators to return to their places of residence via ships that embarked only once every 4 to 6 weeks.

The general reference source for the census office operations in the outlying areas was the *Office Operations Manual*, form D-513-OA. Chapter 2 described the forms and clerical procedures used to track completed questionnaires and those not

yet received in the DO, while chapter 3 presented a detailed description of census forms and codes and explained quality control operations. The last chapter outlined the supervisor's duties and responsibilities. The *Coordinator's Manual*, form D-508-OA, described the census coordinator's job, while the *Crew Leader's Manual*, form D-555-OA, and the *Enumerator's Manual*, form D-549-OA, provided detailed instructions for individuals hired for these positions. A *Questionnaire Reference Book*, form D-561 (issued separately for the Virgin Islands (VI) and the Pacific Islands (PI)), containing detailed, question-by-question explanations and instructions for completing census questionnaires, was distributed to enumerators and crew leaders. Census advisors and census coordinators in each of the outlying areas also received verbatim training guides to ensure uniform training of crew leaders (form D-655-OA) and enumerators (form D-649-OA). Enumeration district (ED) maps, census forms and questionnaires, and office supplies were distributed to each census supervisor. Additional written instructions were issued from time to time to resolve problems that arose and to assure the completion of all steps in the enumeration.

The Enumeration

The census was scheduled to begin on April 1, 1980 (September 15 in the Trust Territory). Despite some delays in the arrival of forms, training materials, and other supplies, the census began on time in nearly all areas. The delay in getting the enumeration under way on St. Croix in the Virgin Islands amounted to only 2 days. Enumerator training for the Trust Territory was conducted during the summer at the same location as the widely attended teacher training program. When teachers returned to their residences in late August and early September, an effort was made to provide them with all the materials needed to enumerate their assigned areas. That teachers had to collect data after school hours caused few problems because householders were rarely home during the day.

After an office review of all completed questionnaires to ascertain that each area had been enumerated properly, the materials were packaged and sent to the Bureau's processing office in Laguna Niguel, CA. Materials generally were received between June and September 1980, with the final shipment from the Trust Territory arriving in January 1981.

Processing the Data

The same basic procedures for editing, coding, and processing the U.S. questionnaires (see chs. 6 and 12) were used for the outlying areas. Special clerical sections were established in Laguna Niguel to edit and code the questionnaires, starting in

mid-1981. More thorough geographic preparation and enumerator training prevented a repetition of the problems encountered in 1970 when editing incomplete or missing geographic information for housing units.

Clerks manually assigned codes to written entries for detailed family relationship, place of birth, parents' birthplaces, residence 5 years ago, and, for persons in the labor force, industry and occupation (I & O). Coding instructions and referral procedures generally were the same as those used for U.S. questionnaires. While special, three-digit place codes were developed for the outlying areas and approximately 30 combined categories (e.g., Chamorro-Carolinian) were added to the ethnicity codes, only minor modifications in the standard classification systems for the United States were required for I & O coding.

The questionnaires were microfilmed and processed through the FOSDIC operation, which "read" and produced a machine-readable version of the filled-in circles on the microfilmed questionnaires. One FOSDIC machine was recalibrated to recognize and accept the distinctively located FOSDIC marks on the outlying-areas questionnaires. Diaries were produced and reviewed, and questionnaires requiring further correction were retrieved and referred to clerks for resolution. After a series of machine edits and the application of the imputation procedure, the data file was ready to be run through the computer tabulation programs.

Using modified versions of computer tabulation programs written for U.S. data, the data for the five major outlying areas were processed and sorted to create basic record files. These files were processed with additional computer programs to produce final population and housing counts for each area and its geographic subdivisions, and tabulations of population and housing characteristics in the detail required for publication.

Publication Program

The publication program was similar, though not identical, to that for the United States. (See ch. 8.) For each area, separate reports were issued in Population series PC80-1-A, *Number of Inhabitants*. These reports presented population counts for each area, its principal subdivisions, and places.

For each of the five areas, series PC80-1-B, *General Population Characteristics*, supplied general demographic characteristics for the area, its principal districts or islands, and places.

For the Virgin Islands, PC80-1-C, *General Social and Economic Characteristics*, and PC80-1-D, *Detailed Population Characteristics*, were published as separate volumes. For each of the other outlying areas, a combined report entitled Detailed Population Characteristics (PC80-1C/D) was published. These reports contained detailed social and economic information in crosstabular form.

Series HC80-1-A, *General Housing Characteristics*, presented characteristics of occupied and vacant housing units (primarily focusing on occupancy, plumbing, utilization, and financial characteristics) for the area, its districts or islands, and places.

The data included in series HC80-1-B, *Detailed Housing Characteristics*, also dealt with the characteristics of occupied and vacant housing units but contained additional information on structural characteristics and fuels used. These data were presented for the same levels of geography as those in the preceding series of housing reports.

Because of the uniqueness of the text, front matter, and table elements, these reports required more custom preparation than the State reports. (For a description of the method of composition and release dates of these reports, see chapter 8.)

Summary tape files (STF's) 1A (population counts for several levels of geography with some cross-tabulations by such variables as age, ethnicity, and sex) and 3A (detailed social and economic characteristics) were produced for each area, but STF's 2, 4, and 5 were not. Further information on the creation, processing, and uses of STF files can be found in chapter 8.

COSTS

Expenditures for the 1980 Census of Puerto Rico and the outlying areas totaled \$13,059,000, of which approximately 84 percent was devoted to the Puerto Rico census. These figures include depreciation but exclude all the costs of general administration, other general expense, and capital outlay, which were only partially recorded at the expenditure level. Data collection was by far the largest component cost, accounting for just over 75 percent of the Puerto Rico census and 65 percent of the census of the outlying areas. As one would expect, the bulk of census spending (about 72 percent) took place during 1980, the year most of the data were collected. (For a detailed breakdown of 1980 census costs, see app. B.)

Appendix 11A. Training and Instructor's Kits Assembled for Delivery to Puerto Rico During the 1980 Census

Kit number	Description	Quantity
	Total number of kits	16,230
649A-PR	Regular enumerator training kit	8,810
649-PR	Regular enumerator instructor's kit	810
651A-PR	Followup enumerator training kit	4,410
651-PR	Followup enumerator instructor's kit	410
652A-PR	Followup crew leader training kit	410
652-PR	Followup crew leader instructor's kit	100
655A-PR	Crew leader trainee kit (2 parts)	810
655-PR	Regular crew leader instructor's kit (2 parts)	100
671A-PR	Special place enumerator trainee kit	300
671-PR	Special place enumerator instructor's kit	30
674A-PR	Special place crew leader trainee kit	30
674-PR	Special place crew leader instructor's kit	10

Appendix 11B. Supply Kits Assembled and Shipped to Puerto Rico During the 1980 Census

Kit number	Description	Quantity
	Total number of kits	20,770
25-PR	Crew leader's standard notebook of forms	810
25A-PR	Followup crew leader's standard notebook of forms	410
101-PR	Part 1, General office supplies	9
101-PR	Part 2, Furniture and equipment	8
102-PR	Special office supplies	8
103-PR	Envelopes and labels	9
104-PR	Administrative forms	8
105-PR	"D" series forms	8
549-PR	Regular enumerator's supply kit	8,810
549A-PR	Regular enumerator's supply of questionnaires	8,810
552-PR	Followup crew leader's supply kit	410
555-PR	Crew leader's supply kit	810
571-PR	Special place enumerator's portfolio	300
571A-PR	Special place enumerator's supply of questionnaires	300
572-PR	Special place crew leader's portfolio	30
572A-PR	Special place crew leader's notebook of forms	30

Appendix 11C. Data-Collection Forms Printed and Shipped to Puerto Rico During the 1980 Census

(Spanish language except where noted)

Form number	Description	Quantity
	Total number of forms	4,684,000
D-1-PR	Short questionnaire	2,000,000
D-1E-PR	Short questionnaire (English version)	70,000
D-2-PR	Long (sample) questionnaire	400,000
D-2E-PR	Long questionnaire (English version)	55,000
D-13-PR	Advance census report	1,300,000
D-20-PR	Individual census report (ICR)	375,000
D-20E-PR	Individual census report (English version)	25,000
D-21-PR	Military census report (MCR)	3,000
D-21E-PR	Military census report (English version)	12,000
D-30-PR	Advance notification letter to special places	20,000
D-40-PR	Return envelope for ICR	325,000
D-41-PR	Leave-it envelope for T-night	15,000
D-41E-PR	Leave-it envelope for T-night (English version)	10,000
D-42E-PR	Return envelope for T-night (English version)	25,000
D-43-PR	Leave-it envelope for housing units	9,000
D-45E-PR	Outgoing envelope for D-30-PR (English version)	20,000
D-46-PR	Return envelope for D-30-PR	20,000

Appendix 11D. Selected Data-Collection Forms Printed for the Outlying Areas During the 1980 Census

(Note: Print orders were for approximately 150 percent of estimated needs, to allow for information copies, training, transcription, office distribution, and the like.)

Form number	Description	Quantity
	Total number of forms	393,000
D-80-AS	Long questionnaire (American Samoa)	20,000
D-80-G	Long questionnaire (Guam)	55,000
D-80-NM	Long questionnaire (Northern Mariana Islands)	8,000
D-80-TT	Long questionnaire (Trust Territory)	90,000
D-80-VI	Long questionnaire (Virgin Islands)	70,000
D-20-AS	Individual census report (American Samoa)	8,000
D-20-G	Individual census report (Guam)	34,000
D-20-NM	Individual census report (Northern Mariana Islands)	8,000
D-20-TT	Individual census report (Trust Territory)	50,000
D-20-VI	Individual census report (Guam)	50,000